

REMARKS

This Application has been carefully reviewed in light of the Office Action mailed June 23, 2003. To clarify various aspects of inventive subject matter, Applicant amends Claims 1, 15, 17, 29, 36, 38, 49, 51, 52, 57, 60, 61, 65, 67, 72, 82, and 86. Applicant also introduces new Claims 87-104 and cancels Claims 2 and 56. To advance prosecution of this application, Applicant has responded to each notation by the Examiner. Applicant submits that all of the pending claims are allowable over the cited references. Applicant respectfully requests reconsideration and favorable action in this case.

In the Drawings:

The Examiner has indicated that the pending patent application lacks formal drawings and that the informal drawings filed with the patent application are acceptable. Applicant will file formal drawings after receiving a notice of allowance.

Disqualified as Prior Art

The present Patent Application is a Continuation-in-Part of and claims priority to U.S. Patent Application No. 09/719,591 by Islam et al. with a filing date of December 12, 2000. In addition, the present Patent Application is a Continuation-in-Part of and claims priority to U.S. Patent No. 6,359,725 by Islam and U.S. Patent No. 6,335,820 by Islam, each having a filing date of December 23, 1999. Thus, a number of claims in the present Patent Application have an effective filing date of at least December 12, 2000 and/or December 23, 1999.

The *Bolshtyansky* patent cited by the Examiner has a filing date of August 7, 2001, and a priority date of June 28, 2001, both of which are after the effective filing date of the present Patent Application. In addition, the *Bartolini* patent cited by the Examiner has a filing date of April 27, 2001, which is after the effective filing date of the present Patent Application. Therefore, Applicant respectfully submits that the *Bolshtyansky* and *Bartolini* patents can not be used to support a rejection of at least Claims 1, 29, 52, 67, 72, 82, and new Claims 87-104.

Claim Rejections – 35 U.S.C. §103

The Examiner has rejected Claims 1-2, 5-24, 26-27, 29, 31-36, 52, 56-63, 66-72, 74-75, 82, and 86 under 35 U.S. § 103(a) as being unpatentable over U.S. Patent 6,456,426

issued to Bolshtyansky et al. ("*Bolshtyansky*"). Claims 25, 28, 30, 37-51, 53-55, 64-65, 73, and 76-81 stand rejected under 35 U.S. § 103(a) as being unpatentable over *Bolshtyansky* in view of U.S. Patent 6,529,315 issued to Bartolini et al. ("*Bartolini*"). The Examiner has also rejected Claims 3-4 under 35 U.S. § 103(a) as being unpatentable over *Bolshtyansky* in view of "Fiber-Optic Communications Systems" published by Agrawal ("*Agrawal*"). Applicant respectfully traverses these claim rejections for the reasons discussed below.

a. Claims 1, 29, 67, and 72 are patentable over the cited references

Although Applicant believes that the *Bolshtyansky* and *Bartolini* patents are disqualified as prior art against Claims 1, 29, 67, and 72, Applicant submits that amended Claim 1 is patentable over *Bolshtyansky*. Among other features, amended Claim 1 recites, in part, the "first pump signal traverses the distributed Raman amplifier fiber in a first direction and the second pump signal traverses the distributed Raman amplifier in a direction counter to the first direction."

Bolshtyansky fails to teach or suggest a number of elements of amended Claim 1. For example, nowhere does *Bolshtyansky* contemplate a first pump signal traverses the distributed Raman amplifier fiber in a first direction and the second pump signal traverses the distributed Raman amplifier in a direction counter to the first direction. To the extent that *Bolshtyansky* discusses a pump signal traversing a distributed Raman amplifier fiber, this discussion is limited to introducing pump light in only one direction. See e.g., Col. 4, Lines 40-45. Consequently, *Bolshtyansky* fails to teach or suggest a multistage amplifier where the "first pump signal traverses the distributed Raman amplifier fiber in a first direction and the second pump signal traverses the distributed Raman amplifier in a direction counter to the first direction."

For at least these reasons, Applicant submits that *Bolshtyansky* fails to teach or suggest amended Claim 1. Applicant respectfully requests withdrawal of the rejection and full allowance of amended independent Claim 1 and all claims depending therefrom.

Applicant submits that amended independent Claims 29, 67, and 72 are patentable over *Bolshtyansky* for at least the reasons discussed above. Thus, Applicant respectfully

requests withdrawal of the rejection and full allowance of amended Claims 29, 67, and 72 and all claims depending therefrom.

b. **Claims 38 and 77 are patentable over the cited references**

Applicant submits that amended Claim 38 is patentable over *Bolshtyansky* in view of *Bartolini*. Among other features, amended Claim 38 recites, in part, that "the dispersion compensating member has an opposite sign of dispersion slope and an opposite sign of dispersion relative to at least a portion of the optical fiber."

Bolshtyansky and *Bartolini*, taken alone or in combination, fail to teach or suggest a number of elements of amended Claim 38. For example, as indicated by the Examiner, nowhere does *Bolshtyansky* contemplate a dispersion compensating member having an opposite sign of dispersion slope and an opposite sign of dispersion. *Office Action at 5*. Consequently, *Bolshtyansky* fails to teach or suggest a dispersion compensating member where "the dispersion compensating member has an opposite sign of dispersion slope and an opposite sign of dispersion relative to at least a portion of the optical fiber."

The *Bartolini* disclosure describes a dispersion compensating fiber having an opposite sign of dispersion relative to a conventional single mode optical fiber. Nowhere does *Bartolini* contemplate a dispersion compensating member having an opposite sign of dispersion slope and an opposite sign of dispersion. Consequently, *Bartolini* fails to teach or suggest a dispersion compensating member where "the dispersion compensating member has an opposite sign of dispersion slope and an opposite sign of dispersion relative to at least a portion of the optical fiber."

For at least these reasons, Applicant submits that *Bolshtyansky* and *Bartolini*, taken alone or in combination, fail to teach or suggest amended Claim 38. Applicant respectfully requests withdrawal of the rejection and full allowance of amended independent Claim 38 and all claims depending therefrom.

Applicant submits that independent Claim 77 is patentable over *Bolshtyansky* in view of *Bartolini* for at least the reasons discussed above. Thus, Applicant respectfully requests

withdrawal of the rejection and full allowance of amended Claim 77 and all claims depending therefrom.

c. **Claims 52 and 82 are patentable over the cited references**

Although Applicant believes that the *Bolshtyansky* and *Bartolini* patents are disqualified as prior art against Claims 52 and 82, Applicant submits that amended Claim 1 is patentable over *Bolshtyansky*. Applicant submits that amended Claim 52 is patentable over *Bolshtyansky*. Among other features, amended Claim 52 recites, in part, "a pump shunt coupled to the signal input port and the signal output port, wherein the pump shunt couples at least a portion of the one or more pump wavelengths λ_p between the first Raman amplifier fiber and the second Raman amplifier fiber."

Bolshtyansky fails to teach or suggest a number of elements of amended Claim 52. For example, *Bolshtyansky* fails to contemplate a pump shunt that is coupled to a signal input port and a signal output port, where the pump shunt couples at least a portion of the one or more pump wavelengths between a first Raman amplifier fiber and a second Raman amplifier fiber. To the extent that *Bolshtyansky* discusses a pump shunts, this discussion is limited to coupling pump wavelengths between transmission fibers. See e.g., Col. 8, Lines 33-45; see also FIGURE 8B. Consequently, *Bolshtyansky* fails to teach or suggest a multistage amplifier having "a pump shunt coupled to the signal input port and the signal output port, wherein the pump shunt couples at least a portion of the one or more pump wavelengths λ_p between the first Raman amplifier fiber and the second Raman amplifier fiber."

For at least these reasons, Applicant submits that *Bolshtyansky* fails to teach or suggest amended Claim 52. Applicant respectfully requests withdrawal of the rejection and full allowance of amended independent Claim 52 and all claims depending therefrom.

Applicant submits that amended independent Claim 82 is patentable over *Bolshtyansky* for at least the reasons discussed above. Thus, Applicant respectfully requests withdrawal of the rejection and full allowance of amended Claim 82 and all claims depending therefrom.

Information Disclosure Statement

The Examiner has requested that the Applicant present a concise statement as to the relevance of the documents listed in the Information Disclosure Statement (IDS). Applicant respectfully submits that it would be improper to highlight any particular ones of the cited references to the exclusion of others. Applicant is concerned that this type of action could unfairly be interpreted as calling undue attention to one or more references to divert attention from others that are not specifically discussed. All documents in the IDS have been brought to Applicant's attention (i.e., are known by Applicant) and are considered relevant enough to be included in the IDS. Applicant is not required to place a rank of materiality on any particular reference over another.

It appears to Applicant that the Examiner inadvertently missed one of the items listed on Page 2 of the Form 1449 submitted with the Information Disclosure Statement (IDS) filed July 12, 2002. A copy of this IDS enclosing the reference not considered is included as Appendix A for the Examiner's convenience. Applicant respectfully requests the Examiner to indicate his consideration of the reference submitted by initialing next to the reference on Page 2 of the Form 1449.

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APPENDIX A

CONCLUSION


Applicant has made an earnest attempt to place this case in condition for allowance. For the foregoing reasons and for other reasons clearly apparent, Applicant respectfully requests reconsideration and full allowance of all pending Claims.

Applicant has included a check for \$270.00 to cover the cost of filing 3 additional independent claims and 16 claims total. Applicant believes that no other fees are due, however, the Commissioner is hereby authorized to charge any additional fees or credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

If the Examiner feels that a conference would advance prosecution of this Application in any manner, Douglas M. Kubehl stands willing to conduct such a telephone interview at the convenience of the Examiner. Mr. Kubehl may be reached at 214-953-6486.

Respectfully submitted,

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